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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,318	08/06/2003	David Cope	EMI 02.02	8133

27667 7590 11/28/2005
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EXAMINER

MOON, SEOKYUN

ART UNIT PAPER NUMBER

2675

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/635,318	COPE ET AL.	
	Examiner	Art Unit	
	Seokyun Moon	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on August 06, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-54 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. **Claims 1-26, 29-31, 44-46, and 54**, drawn to a multiple degree-of-freedom motor comprising an output shaft, a stator comprising lamination stacks that have interior curved surfaces and coils wound thereon, and a movable rotor being fixed to the output shaft and supporting the adjacent stator with an air gap disposed between the rotor and the stator, classified in class 345, subclass 161.
 - II. **Claims 27-28**, drawn to a lamination stack for use in a stator wherein the laminations near the edge of the stack are disposed closer to the output shaft to form a concave surface about the axis of the output shaft and the shape of the concave surface approximates an arc having a constant radius in a plane orthogonal to a side surface of the laminations, classified in class 340, subclass 870.32.
 - III. **Claims 32-43**, drawn to a coil winding comprising a spiral coil having a plurality of turns therein, wherein the spiral coil is disposed relative to the rotor such that torque control over the output shaft in a degree of freedom is exerted by selective provision of a current having a predetermined direction and magnitude to the spiral coil, classified in class 336, subclass 115.

IV. **Claims 47-53**, drawn to a rotor comprising a linkage member having a spherical surface and two arms extending therefrom adapted for coupling to the output shaft wherein each arm of the linkage member coupled to a magnet, classified in class 310, subclass 46.

2. The inventions are distinct, each from the other because of the following reasons:

3. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as a structure and various components of a multiple degree-of-freedom motor while invention II has separate utility such as a lamination stack for use in a stator having a concave surface wherein the shape of the concave surface approximates an arc having a constant radius in a plane orthogonal to a side surface of the laminations, and thus disposing the lamination stack closer to the output shaft. See MPEP § 806.05(d).

4. Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II has separate utility such as a lamination stack for use in a stator having a concave surface wherein the shape of the concave surface approximates an arc having a constant radius in a plane orthogonal to a side surface of the laminations, and thus disposing the lamination stack closer to the output shaft while invention III has separate utility such as a spiral-winding coil disposed relative to a rotor such that the torque control over the output shaft in a

degree of freedom is exerted by selective provision of a current. See MPEP § 806.05(d).

5. Inventions III and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention III has separate utility such as a spiral-winding coil disposed relative to a rotor such that the torque control over the output shaft in a degree of freedom is exerted by selective provision of a current while invention IV has separate utility such as a rotor comprising a linkage member having two arms with magnets for coupling to the output shaft. See MPEP § 806.05(d).

6. Inventions IV and I are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention IV has separate utility such as a rotor comprising a linkage member having two arms with magnets for coupling to the output shaft while invention I has separate utility such as a structure and various components of a multiple degree-of-freedom motor while invention II has separate utility such as a lamination stack for use in a stator having a concave surface wherein the shape of the concave surface approximates an arc having a constant radius in a plane orthogonal to a side surface of the laminations, and thus disposing the lamination stack closer to the output shaft. See MPEP § 806.05(d).

7. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, the search required for Group II

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is not required for Group III, the search required for Group III is not required for Group IV, and the search required for Group IV is not required for Group I, restriction for examination purposes as indicated is proper.

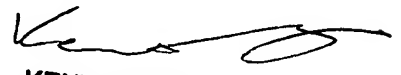
Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

10/07/2005
SM


KENT CHANG
PRIMARY EXAMINER